

An exciting new position for a PhD student or MSc student is available in the department of Production Animal Health at the Faculty of Veterinary Medicine, University of Calgary (UCVM). The cutting-edge and multidisciplinary research in this dynamic department focuses on the most important diseases of domestic animals. Our lab has 15 years of experience in studying many aspects of bovine bacterial infections. We are currently looking for a graduate student with strong skills or interest in microbiology, specifically mycobacteriology. This position is open for people holding a degree in biological sciences, animal sciences, veterinary medicine, health sciences or equivalent degree.

Discovery and application of novel phages to protect dairy calves against Johne's disease

Johne's disease, caused *Mycobacterium avium* subsp. *paratuberculosis*, remains a problem on dairy farms around the world. Western Canada has a particularly high prevalence, despite informed management changes and routine diagnostics. Our group is working on a novel vaccine, as current vaccines do not protect against infection and interfere with diagnostics. It is important to note that even an ideal vaccine will create an immunity gap, an interval before induced immune responses are protective. Therefore, a metaphylactic approach is needed to ensure that newborn calves are not infected during this vulnerable interval. We are proposing the use of mycobacteriophages, viruses that kill Mycobacteria. We propose to investigate the impact of adding mycobacteriophages to colostrum and milk replacer to kill MAP before it can infect calves. For this purpose, we will use a novel large-scale approach to isolate MAP-specific phages and then characterize them genetically and functionally, with an emphasis on resistance and safety. Furthermore, we will determine activity and compatibility with existing diagnostics. Finally, we will assess protection of young calves from MAP experimental infection offered by phage supplementation of colostrum and milk replacer.

Requirements: knowledge, experience or strong interest in microbiology

The successful candidate will receive training in molecular microbiology, bioinformatics, cattle health and infection biology and will become part of a large, well-funded and dynamic lab specialized in microbial diseases of dairy cattle.

Please send your questions or application to jdebuck@ucalgary.ca